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BOOK OF ABSTRACTS

P-76 SEPARATION OF NADOLOL STEREOISOMERS BY LIQUID CHROMATOGRAPHY USING CHIRALPAK IA CHIRAL STATIONARY PHASE

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The separation of nadolol stereoisomers on CHIRALPAK® AD at both analytical and preparative scales was recently reported by Ribeiro et al. [1]. CHIRALPAK® AD is an amylose-based chiral stationary phase (CSP) and is produced by physical coating of the chiral polymer on a matrix. However, due to their coated nature, this CSP can only be used with a limited range of solvents such as the polar (e.g. alcohols) or non-polar solvents (e.g. alkanes). Immobilization of a polysaccharide-derivative on the support is an evolutionary strategy to make a CSP compatible with the whole range of organic solvents, which will consequently extend its application scope. CHIRALPAK® IA is a CSP containing amylose 3,5-dimethylphenylcarbamate immobilized onto silica gel [2].
This work will present a complete methodology concerning experimental, modelling and simulation results. Both the CHIRALPAK® AD and CHIRALPAK® IA CSPs will be evaluated using the nadolol stereoisomers separation as case study. The selection of the proper CHIRALPAK® IA/solvent combination for preparative operation will be fully study taking into account a complete screening strategy [3]. Additional results will include the measurement of the chiral mixture solubility's, equilibrium adsorption data and fixed bed (breakthroughs) experiments. The complete screening will lead to the choice of the better solution for the pseudo-binary separation of the nadolol most retained stereoisomer. Finally, experimental results will be presented for the preparative separation using a Simulated Moving Bed (SMB) pilot unit. The results obtained will be compared with previous published work using the CHIRALPAK® AD adsorbent.

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